

Clean Version of Amended Claims:

1 9. A process for controlling the pressure within a chamber, comprising the steps of:
2 *D&P F'* pressure control steps, comprising:
3 first generating a pressure sensor signal responsive to the pressure in said
4 chamber; and
5 second generating a step command signal responsive to said pressure sensor
6 signal and a tool logic signal, said step command signal generating comprising applying a
7 pressure control algorithm to said pressure sensor and tool logic signals;
8 position control steps, comprising:
9 third generating a direction/speed command signal responsive to said step
10 command signal and valve position feedback signal, said direction/speed command signal
11 generating comprising applying a position control algorithm to said step command and valve
12 position feedback signals;
13 actuating said valve responsive to said direction/speed command signal, said
14 actuating comprising moving said valve by operation of a motor drive, said actuating
15 resulting in said valve residing in a position, said valve in fluid communication with said
16 chamber; and
17 fourth generating another said valve position feedback signal responsive to said
18 position of said valve, said valve position feedback signal comprising data representing the
19 position of said motor drive operatively connected to said valve; and
20 repeating position control steps and said pressure control steps as appropriate until
21 said pressure is controlled adequately.

1 12. The process of Claim 10, wherein said drive assembly conducting said actuating/feedback
2 step further comprises a motor drive attached to a reduction gear means.

1 14. A process for controlling the fluid flow through a conduit whereby the pressure in a chamber in
2 fluid communication with said conduit is controlled, comprising the steps of:

3 pressure control steps, comprising:

4 *L39 F1* generating a pressure sensor signal responsive to the pressure in said chamber; and
5 generating a step command signal responsive to said pressure sensor signal and a
6 tool logic signal, said step command signal generating comprising applying a flow control algorithm
7 to said pressure sensor and tool logic signals;

8 position control steps, comprising:

9 generating a direction/speed command signal responsive to said step command
10 signal and valve position feedback signal, said direction/speed command signal generating
11 comprising applying a position control algorithm to said step command and valve position feedback
12 signals;

13 actuating said valve responsive to said direction/speed command signal, said
14 actuating comprising moving said valve by operation of a motor drive, said actuating resulting in
15 said valve residing in a valve position, said valve in fluid communication with said conduit; and
16 generating another said valve position feedback signal responsive to said position of
17 said valve, said valve position feedback signal comprising data representing the position of said
18 motor drive operatively connected to said valve; and

19 repeating said position control steps and said pressure control steps, as appropriate until said
20 conduit fluid flow and said chamber pressure are controlled adequately.

1 *E4* 17. The process of Claim 15, wherein said drive assembly conducting said actuating/feedback
2 step further comprises a motor drive attached to a reduction gear means.

1 19. A process for controlling the pressure within a chamber, comprising the steps of:

2 first generating a pressure sensor signal responsive to the pressure in said chamber;

3 second generating a step command signal responsive to said pressure sensor signal and a
4 tool logic signal, said step command signal generating comprising applying a pressure control
5 algorithm to said pressure sensor and tool logic signals;

6 third generating a direction/speed command signal responsive to said step command
7 signal and valve position feedback signal, said direction/speed command signal generating
8 comprising applying a position control algorithm to said step command and valve position
9 feedback signals;

10 actuating said valve responsive to said direction/speed command signal, said actuating
11 comprising moving said valve by operation of a motor drive assembly, said actuating resulting in
12 said valve residing in a position, said valve in fluid communication with said chamber;

13 fourth generating another said valve position feedback signal responsive to said position
14 of said valve, said valve position feedback signal comprising data representing the position of
15 said motor drive assembly operatively connected to said valve;

16 first repeating said third generating, said actuating and said fourth generating steps until
17 said motor drive assembly is positioned adequately; and

18 second repeating said first and second generating and said first repeating steps until said
19 pressure is controlled adequately.

1 23. The process of Claim 20, wherein said motor drive assembly position comprises the position
2 of said valve stem.

1 24. The process of Claim 19, wherein:

2 said valve further comprises a valve stem; and

3 said motor drive assembly comprises a motor drive operatively connected to said
4 valve stem.

1 25. The process of Claim 24, wherein said motor drive assembly position comprises the position
2 of said valve stem.

1 26. A process for controlling the fluid flow through a conduit whereby the pressure in a chamber in
2 fluid communication with said conduit is controlled, comprising the steps of:
3 generating a pressure sensor signal responsive to the pressure in said chamber;
4 generating a step command signal responsive to said pressure sensor signal and a tool logic
5 signal, said step command signal generating comprising applying a pressure control algorithm to
6 said flow sensor and tool logic signals;
7 generating a direction/speed command signal responsive to said step command signal and
8 valve position feedback signal, said direction/speed command signal generating comprising
9 applying a position control algorithm to said step command and valve position feedback signals;
10 actuating said valve responsive to said direction/speed command signal, said actuating
11 comprising moving said valve by operation of said motor drive assembly, said actuating resulting
12 in said valve residing in a valve position, said valve in fluid communication with said conduit;
13 generating another said valve position feedback signal responsive to said position of said
14 valve, said valve position feedback signal comprising data representing the position of said motor
15 drive assembly operatively connected to said valve;
16 first repeating said direction/speed command signal generating step, said actuating step and
17 said valve position feedback signal generating step until said motor drive assembly is positioned
18 adequately; and
19 second repeating said first and second generating and said first repeating steps until said
20 conduit fluid flow and said chamber pressure are controlled adequately.

1 27. The process of Claim 26, wherein:

2 said valve further comprises a valve stem; and

3 *[initials]* said motor drive assembly comprises a motor drive and reduction gear means, said
4 reduction gear means operatively connected between said motor drive and said valve stem.

1 28. The process of Claim 27, wherein said motor drive assembly position comprises the
2 rotational position of said reduction gear means.

1 29. The process of Claim 26, wherein:

2 *E 19* said valve further comprises a valve stem; and

3 said motor drive assembly comprises said valve stem, a motor drive and reduction
4 gear means, said reduction gear means operatively connected between said motor drive and said
5 valve stem.

1 30. The process of Claim 29, wherein said motor drive assembly position comprises the position
2 of said valve stem.

1 31. The process of Claim 26, wherein:

2 said valve further comprises a valve stem; and

3 said motor drive assembly comprises a motor drive operatively connected to said
4 valve stem.

1 32. The process of Claim 31, wherein said motor drive assembly position comprises the
2 position of said valve stem.

1 9. (Thrice Amended) A process for controlling the pressure within a chamber, comprising
2 the steps of:

3 [initial generating an originating valve position feedback signal, said originating
4 valve position feedback signal comprising data representing the position of a motor drive
5 operatively connected to a valve when said valve resides in an originating position, said
6 originating position defined as the position of said valve prior to commencement of said
7 chamber pressure control;]

8 pressure control steps, comprising:

9 first generating a pressure sensor signal responsive to the pressure in said chamber;
10 and

11 second generating a step command signal responsive to said pressure sensor signal
12 and a tool logic signal, said step command signal generating comprising applying a pressure
13 control algorithm to said pressure sensor and tool logic signals;

14 position control steps, comprising:

15 third generating a direction/speed command signal responsive to said step command
16 signal and [said] valve position feedback signal, said direction/speed command signal
17 generating comprising applying a position control algorithm to said step command and valve
18 position feedback signals;

19 actuating said valve responsive to said direction/speed command signal, said
20 actuating comprising moving said valve by operation of [said] a motor drive, said actuating
21 resulting in said valve residing in a position, said valve in fluid communication with said
22 chamber; and

23 fourth generating another said valve position feedback signal responsive to said
24 position of said valve, said valve position feedback signal comprising data representing the
25 position of said motor drive operatively connected to said valve; and

26 repeating position control steps and said pressure control steps as appropriate[said
27 third generating, said actuating and said fourth generating steps] until said pressure is
28 controlled adequately.

1 12. (Amended) The process of Claim 1[1]0, wherein said drive assembly conducting said
2 actuating/feedback step further comprises a motor drive attached to a reduction gear means.

1 14. (Thrice Amended) A process for controlling the fluid flow through a conduit whereby the
2 pressure in a chamber in fluid communication with said conduit is controlled, comprising the steps
3 of:

4 [initial generating an originating valve position feedback signal, said originating
5 valve position feedback signal comprising data representing the position of a motor drive
6 operatively connected to a valve when said valve resides in an originating position, said
7 originating position defined as the position of said valve prior to commencement of said fluid
8 flow control;]

9 pressure control steps, comprising:

10 generating a pressure sensor signal responsive to the pressure in said chamber; and
11 generating a step command signal responsive to said pressure sensor signal and a tool logic
12 signal, said step command signal generating comprising applying a flow control algorithm to said
13 pressure sensor and tool logic signals;

14 position control steps, comprising:

15 generating a direction/speed command signal responsive to said step command signal and
16 [said]valve position feedback signal, said direction/speed command signal generating comprising
17 applying a position control algorithm to said step command and valve position feedback signals;
18 actuating said valve responsive to said direction/speed command signal, said actuating
19 comprising moving said valve by operation of [said]a motor drive, said actuating resulting in said
20 valve residing in a valve position, said valve in fluid communication with said conduit; and

21 generating another said valve position feedback signal responsive to said position of said
22 valve, said valve position feedback signal comprising data representing the position of said motor
23 drive operatively connected to said valve; and

24 repeating said position control steps and said pressure control steps, as
25 appropriate[direction/speed command signal generating step, said actuating step and said valve
26 position feedback signal generating step] until said conduit fluid flow and said chamber pressure are
27 controlled adequately.

1 17. (Amended) The process of Claim 1[6]5, wherein said drive assembly conducting said
2 actuating/feedback step further comprises a motor drive attached to a reduction gear means.

1 19. (Amended) A process for controlling the pressure within a chamber, comprising the steps
2 of:

3 [initial generating an originating valve position feedback signal, said originating valve
4 position feedback signal comprising data representing the position of a motor drive assembly
5 operatively connected to a valve when said valve resides in an originating position, said
6 originating position defined as the position of said valve prior to commencement of said chamber
7 pressure control;]

8 first generating a pressure sensor signal responsive to the pressure in said chamber;

9 second generating a step command signal responsive to said pressure sensor signal and a
10 tool logic signal, said step command signal generating comprising applying a pressure control
11 algorithm to said pressure sensor and tool logic signals;

12 third generating a direction/speed command signal responsive to said step command
13 signal and [said]valve position feedback signal, said direction/speed command signal generating
14 comprising applying a position control algorithm to said step command and valve position
15 feedback signals;

16 actuating said valve responsive to said direction/speed command signal, said actuating
17 comprising moving said valve by operation of [said]a motor drive assembly, said actuating

18 resulting in said valve residing in a position, said valve in fluid communication with said
19 chamber;

20 fourth generating another said valve position feedback signal responsive to said position
21 of said valve, said valve position feedback signal comprising data representing the position of
22 said motor drive assembly operatively connected to said valve; [and]

23 first repeating said third generating, said actuating and said fourth generating steps until
24 said motor drive assembly is positioned[pressure is controlled] adequately; and

25 second repeating said first and second generating and said first repeating steps until said
26 pressure is controlled adequately.

1 2[2]3. The process of Claim 2[1]0, wherein said motor drive assembly position comprises the
2 position of said valve stem.

1 2[3]4. The process of Claim 19, wherein:

2 said valve further comprises a valve stem; and

3 said motor drive assembly comprises a motor drive operatively connected to said
4 valve stem.

1 2[4]5. The process of Claim 2[3]4, [hwherein]wherein said motor drive assembly position
2 comprises the position of said valve stem.

1 2[5]6. A process for controlling the fluid flow through a conduit whereby the pressure in a chamber
2 in fluid communication with said conduit is controlled, comprising the steps of:

3 [initial generating an originating valve position feedback signal, said originating
4 valve position feedback signal comprising data representing the position of a motor drive
5 assembly operatively connected to a valve when said valve resides in an originating position,
6 said originating position defined as the position of said valve prior to commencement of said
7 fluid flow control;]

8 generating a pressure sensor signal responsive to the pressure in said chamber;

9 generating a step command signal responsive to said pressure sensor signal and a tool logic
10 signal, said step command signal generating comprising applying a pressure control algorithm to
11 said flow sensor and tool logic signals;

12 generating a direction/speed command signal responsive to said step command signal and
13 [said] valve position feedback signal, said direction/speed command signal generating comprising
14 applying a position control algorithm to said step command and valve position feedback signals;

15 actuating said valve responsive to said direction/speed command signal, said actuating
16 comprising moving said valve by operation of said motor drive assembly, said actuating resulting
17 in said valve residing in a valve position, said valve in fluid communication with said conduit;

18 generating another said valve position feedback signal responsive to said position of said
19 valve, said valve position feedback signal comprising data representing the position of said motor
20 drive assembly operatively connected to said valve; [and]

21 first repeating said direction/speed command signal generating step, said actuating step and
22 said valve position feedback signal generating step until said motor drive assembly[conduit fluid
23 flow and said chamber pressure are controlled]is positioned adequately; and

24 second repeating said first and second generating and said first repeating steps until said
25 conduit fluid flow and said chamber pressure are controlled adequately.

1 2[6]7. The process of Claim 2[5]6, wherein:

2 said valve further comprises a valve stem; and

3 said motor drive assembly comprises a motor drive and reduction gear means, said
4 reduction gear means operatively connected between said motor drive and said valve stem.

1 2[7]8. The process of Claim 2[6]7, wherein said motor drive assembly position comprises the
2 rotational position of said reduction gear means.

1 2[8]9. The process of Claim 2[5]6, wherein:

2 said valve further comprises a valve stem; and

3 said motor drive assembly comprises said valve stem, a motor drive and reduction
4 gear means, said reduction gear means operatively connected between said motor drive and said
5 valve stem.

1 [29]30. The process of Claim 2[8]9, wherein said motor drive assembly position comprises the
2 position of said valve stem.

1 3[0]1. The process of Claim 2[5]6, wherein:

2 said valve further comprises a valve stem; and

3 said motor drive assembly comprises a motor drive operatively connected to said
4 valve stem.

1 3[1]2. The process of Claim 3[0]1, [h]wherein said motor drive assembly position
2 comprises the position of said valve stem.